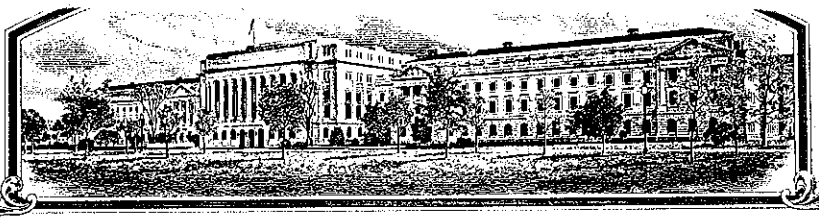
No. 8200002



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Northrup King Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS REQUIRED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

COMMON WHEAT

'Walera'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 17th *day of* June *in the year of our Lord one thousand nine hundred and* eighty-two.

Attest:

Kenneth A. Evans
Acting Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R Block
Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

FORM APPROVED
OMB NO. 40-R3822

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICIAL USE ONLY
75S 2634	Walera	PV NUMBER 8200002
2. KIND NAME: Wheat, Common	3. GENUS AND SPECIES NAME: Triticum aestivum	FILING DATE 10/08/81 / TIME 12:00 A.M. (P.M.)
4. FAMILY NAME (BOTANICAL): Gramineae	5. DATE OF DETERMINATION: October, 1978	FEE RECEIVED $ 500.00 $ 250.00 / DATE 10/13/81 3/1/82
6. NAME OF APPLICANT(S): Northrup King Co.	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*: 1500 Jackson St. N.E. Minneapolis, MN 55413	8. TELEPHONE AREA CODE AND NUMBER: 612-781-5305

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	Delaware	1896

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS:

Robert W. Romig, Northrup King Co., 1500 Jackson St. N.E., Minneapolis, MN 55440

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Novelty Statement.
- [X] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*
- [X] 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED?
[X] YES [ ] NO	[X] FOUNDATION [X] REGISTERED [X] CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? [X] YES [ ] NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

OCTOBER 5 1981 — (DATE)

Robert W. Romig — (SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

8200002

EXHIBIT A

Origin and Breeding History of the Variety

Walera is the result of hybridization and individual plant selection from the cross Waldron/Era. Our pedigree is N3269-2A-1M-1A-OF. It was identified as selection 75S 2634. The female parent is a tall and awnless cultivar released by North Dakota in 1969. Era, the male parent, is a semi-dwarf cultivar released in 1970 by Minnesota.

We made the cross in the greenhouse at Eden Prairie, Minnesota, in the spring of 1972. The F1 was grown in the field at Eden Prairie during the summer of 1972. This was followed by individual plant selections alternating between Yuma, Arizona and Moorhead, Minnesota during the F2 to F4 generations. In 1974 the F5 plant progeny row (F6 seed) at Moorhead was harvested in bulk to provide seed for preliminary trials.

Seed from the preliminary trial plot at Yuma was utilized to plant replicated trials (F7) at Moorhead in 1976. Seed from Moorhead in 1976 was utilized to package trials at Moorhead and Billings in 1977. The seed from the 1977 Billings yield test was increased at Yuma in 1978 (F9) and again in 1979 (F10). Walera is thus derived from an F5 progeny row.

Walera has been maintained as a pure-line of the F5 bulk with roguing of off-types in the Yuma, Arizona environment to produce breeders seed. Tall variants with spikes similar to Walera have been noted at low seeding rates in the Yuma environment. The frequency of these variants is less than 0.1%. During multiplication in Minnesota, this height variation has not been observed. Therefore, Walera is considered to be uniform and stable in its primary area of adaptation.

Foundation, registered and certified seed of Walera has been inspected and approved by the Minnesota Crop Improvement Association in 1981.

EXHIBIT B

Novelty Statement

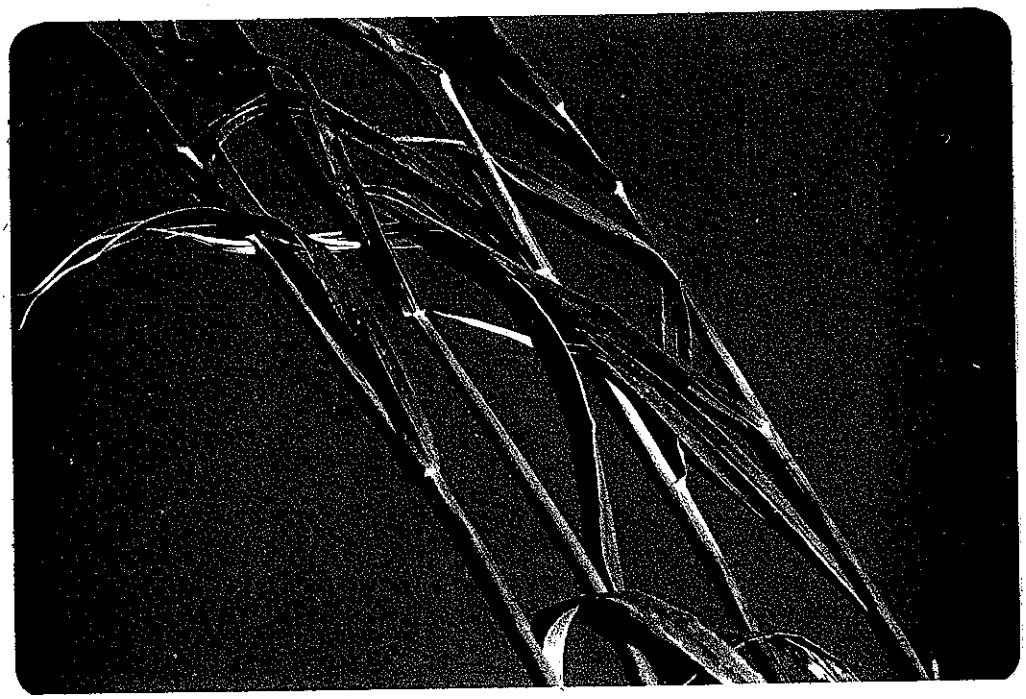
Walera is most similar to the variety "Era" but differs from Era in plant color and waxy bloom. The plant color for Walera is a darker green than that of Era. The waxy bloom is more pronounced on Walera than Era.

Walera and Era can also be differentiated by seedling reactions to physiologic races of Puccinia graminis f. sp. tritici. The following infection types were observed at the Cereal Rust Laboratory in 1980:

	Infection Type	
Race	Walera	Era
TNMK	2	;
RSHS	;	2

As can be seen, the infection type for Walera differs from Era with races TNMK and RSHS. Walera also differs from Era in phenol reaction; Walera is brown whereas Era is brown-black.

Picture 1. Difference in stem color and waxy bloom between Era (two stems on the left) and Walera (two stems on the right). Picture taken by W. A. Althaus at Yuma, Arizona on March 23, 1981 of 81AS99364 (Era) and 81AS99034 (Walera).



Picture 2. Difference in plant color and waxy bloom at boot stage between Era (two stems on the left) and Walera (two stems on the right). Picture taken by W. A. Althaus at Yuma, Arizona on March 23, 1981 of 81AS99364 (Era) and 81AS99034 (Walera).

FORM APPROVED. OMB NO. 40-R3712

FORM GR-470-6
(2-15-73)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
Northrup King Co.

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*
1500 Jackson St. N.E.
Minneapolis, MN 55413

FOR OFFICIAL USE ONLY

PVPO NUMBER
8200002

VARIETY NAME OR TEMPORARY DESIGNATION
Walera

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:
[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:
[1] 1 = SPRING 2 = WINTER 3 = OTHER *(Specify)* _____
[2] 1 = SOFT 2 = HARD 3 = OTHER *(Specify)* _____
[2] 1 = WHITE 2 = RED 3 = OTHER *(Specify)* _____

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:
[ ][ ][ ] FIRST FLOWERING
[ ][ ][ ] LAST FLOWERING

4. MATURITY *(50% Flowering)*:
[0][0] NO. OF DAYS *EARLIER* THAN ..... [7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS
[0][0] NO. OF DAYS *LATER* THAN ..... [7] 4 = LEMHI 5 = NUGAINES 6 = LEEDS
7= Era

5. PLANT HEIGHT *(From soil level to top of head)*:
[0][7][6] CM. HIGH
7=Era
[ ][ ] CM. TALLER THAN ..... [ ] 1 = ARTHUR 2 = SCOUT 3 = CHRIS
[0][1] CM. SHORTER THAN ..... [7] 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING *(See reverse)*:
[2] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:
[1] 1 = YELLOW 2 = PURPLE

8. STEM:
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT
[2] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT
[0][3] NO. OF NODES *(Originating from node above ground)*
[2] Waxy bloom: 1 = ABSENT 2 = PRESENT
[1] Internodes: 1 = HOLLOW 2 = SOLID
[1][9] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT
[2] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:
[1] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER *(Specify)*: _____
[2] Flag leaf: 1 = NOT TWISTED 2 = TWISTED
[1] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT
[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
[1][3] MM. LEAF WIDTH *(First leaf below flag leaf)*
[2][5] CM. LEAF LENGTH *(First leaf below flag leaf)*:

FORM GR-470-6 (REVERSE)

11. HEAD:

[1] Density: 1 = LAX 2 = DENSE

[1] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER *(Specify)* _____

[4] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[1] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER *(Specify)*: _____

[0][7] CM. LENGTH [1][1] MM. WIDTH

12. GLUMES AT MATURITY:

[2] Length: 1 = SHORT *(CA. 7 mm.)* 2 = MEDIUM *(CA. 8 mm.)* 3 = LONG *(CA. 9 mm.)*

[2] Width: 1 = NARROW *(CA. 3 mm.)* 2 = MEDIUM *(CA. 3.5 mm.)* 3 = WIDE *(CA. 4 mm.)*

[1] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[3] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[1] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[3] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[1] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

[1] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[4] Phenol reaction *(See instructions)*: 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER *(Specify)* _____

[0][6] MM. LENGTH [0][3] MM. WIDTH [3][0] GM. PER 1000 SEEDS

17. SEED CREASE:

[2] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA'
2 = 80% OR LESS OF KERNEL 'CHRIS'
3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[2] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT'
2 = 35% OR LESS OF KERNEL 'CHRIS'
3 = 50% OR LESS OF KERNEL 'LEMHI'

2/17/81

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[2] STEM RUST *(Races)* TNMH TNMK RHRS, QSHS, RTQQ

[1] LEAF RUST *(Races)* _____

[0] STRIPE RUST *(Races)* _____

[0] LOOSE SMUT

[0] POWDERY MILDEW RKQS

[0] BUNT

[ ] OTHER *(Specify)* _____

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] SAWFLY

[0] APHID *(Bydv.)*

[0] GREEN BUG

[0] CEREAL LEAF BEETLE

[ ] OTHER *(Specify)* _____

HESSIAN FLY RACES: [ ] GP [ ] A [ ] B [ ] C [ ] D [ ] E [ ] F [ ] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Era	Seed size	Era
Leaf size	Era	Seed shape	Era
Leaf color	Era	Coleoptile elongation	Era
Leaf carriage	Era	Seedling pigmentation	Era

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. *(See attachment.)*

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

EXHIBIT D

Additional Description of the Variety

D 2/08/82

Walera is a cultivar of Triticum aestivum L. with spring growth habit. The kernels are hard, red, and ovate in shape. Cheeks are mostly often rounded. The crease is midwide and middeep to shallow. Germs are midsized and the brush is midsized and ~~midlong~~ short. D 2/8/82 Spikes are awned, fusiform, and lax to middense. Glume shoulders are wanting in shape and midwide. Beaks are midwide, acuminate, and 4-10 mm long.

This variety is a semidwarf with height comparable to Era. Relative maturity is medium late like Era. Walera is resistant to stem rust (Puccinia graminis sp. tritici) and susceptible to leaf rust (P. recondita).

Stem Rust Race	Infection Type
TNMH	;
TNMK	2
RTQQ	;
RPQQ	;
RSHS	;
RHRS	0;
QSHS	2-
QFBS	0;
HJCS	0;
HNLQ	;

Leaf Rust Race	Reaction
KGB	S
CBC	S

The coleoptile color is white and seedling anthocyanin is absent. Juvenile plant growth is erect. Plant color at booting is dark green. Waxy bloom is present on the flag leaf sheath and stem. Auricles have a few hair present and no anthocyanin. The stem is hollow and has no anthocyanin. Usually three to four nodes originate from the node above ground. The flag leaf is primarily erect and twisted at boot stage then becomes recurved in late boot. Anther color is yellow.

Overall baking quality is acceptable and comparable to Era.

Table 1. Dates of Heading for Walera and Era

Year and Location	Walera	Era
1977		
Moorhead, MN	168	168
1978		
Moorhead, MN	184	182
E. Grand Forks, MN	173	173
Average	179	178
1979		
Moorhead, MN	194	193
E. Grand Forks, MN	189	190
Portage, Man.	203	203
Average	195	195
1980		
Moorhead, MN	175	176
4-Year Average	179	179

Table 2. Plant Height of Walera and Era

Year and Location	Walera	Era	Difference
	CM	CM	CM
1977			
Moorhead, MN	81	79	2
Portage, Man.	73	76	-3
Average	77.0	77.5	-0.5
1978			
Moorhead, MN	76	76	0
E. Grand Forks, MN	71	73	-2
Average	73.5	74.5	-1.0
1979			
Moorhead, MN	74	71	3
E. Grand Forks, MN	77	80	-3
Average	75.5	75.5	0
1980			
Moorhead	77	83	-6
4-Year Average	75.8	77.6	-1.8

Table 3. Quality Characteristics of Walera and Checks at East Grand Forks, MN in 1978 & Moorhead, MN in 1979

Characteristics	1978		1979	
	Walera	Era	Walera	Era
Wheat Protein	13.60	12.85	13.75	13.90
Test Weight	63.7	64.9	63.2	64.0
Milling Ext. %	74.8 VG-	74.2 G+	75.5 VG	72.4 G
Farinograph				
Absorption	60.8	62.3	60.8	60.0
Peak	6.75	6.00	4.75	5.50
Stability	9.50	7.50	8.00	8.50
MTI	35	50	40	40
Valorimeter	66	60	56	59
Flour				
Ash	.448	.460	.461	.442
Protein	12.70	11.90	12.80	12.90
Bake				
Absorption	63.5 G	64.5 G	64.0 G	64.0 G
Mix	4.00 G	3.50 G	4.00 G	5.00 VG
Dough	6 G	6 G	5 G-	6 G
Loaf. Vol. cc	980 VG-	1000 VG	1000 VG	975 VG
Score	31 G	31 G	29 G	33 G
Overall Score	61 G	60 G-	58 G-	62 G